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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/916,117	07/25/2001	Robert Kenneth Parr	130109.405	7452

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EXAMINER
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CHANG, SUNRAY

ART UNIT	PAPER NUMBER
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2121

DATE MAILED: 05/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

47

## Office Action Summary

Application No.

09/916,117

Applicant(s)

PARR, ROBERT KENNETH

Examiner

Sunray Chang

Art Unit

2121

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 July 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                                                        |                                                                                         |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                            | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

**DETAILED ACTION**

1. Claims 1 – 32 are presented for examination.

Claims 1 – 32 are rejected.

**Claim Rejections - 35 USC § 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
2. **Claims 1 – 32 are rejected** under 35 U.S.C. 103(a) as being unpatentable over Bryan T. Hill (U.S. Patent No. 6,362,540 and referred to as **Hill** hereinafter), and in view of Mark A. Rosswurm (U.S. Patent No. 4,649,537 and referred to as **Rosswurm** hereinafter).  
  
(**Hill** as set forth above generally discloses the basic inventions.)
3. **Regarding claims 1 – 32,**

Art Unit: 2121

**Hill** teaches,

- A fuel cell system; [fuel cells, see Fig. 1 & 2, and Col. 4, Lines 53 – 67]
- a fuel cell stack; [see Fig. 1 & 2]
- at least one sensor proximate the fuel cell stack to detect an operating parameter of the fuel cell stack; [determines the condition, see Col. 9, Lines 14 – 34]
- at least one actuator; [electrical load, see Fig. 1] and
- a microcontroller [microprocessor] coupled to receive signals [storing] from the sensor [monitors data collected] and to provide signals to the actuator and configured to perform a self test [a self test task]. [see Col. 5, Lines 51 – 62, and Col. 6, Line 29 – Col. 7, Line 3]

**Hill** does not teach setting a set of bits in a number of general registers of the microcontroller to a predefined pattern; complementing the set of bits of one of the general registers; copying the set of bits from the one of the general registers to a special register of the microcontroller; determining if each bit in the set of bits copied to the special register was complemented; and producing a notification signal based on the determination.

**Rosswurm** teaches,

- setting a set of bits in a number of general registers of the microcontroller to a predefined pattern [random pattern inputs are latched into shift register]; complementing [complemented] the set of bits of one of the general registers [latched into shift register]; copying the set of bits from the one of the general registers to a special register of the microcontroller [restored to the shift register]; determining if each bit in the set of bits copied

Art Unit: 2121

to the special register was complemented [Col. 3, Lines 41 – 43]; and producing a notification signal based on the determination [unlock strobe pulse]. [fault detection scheme for microprocessor system, see Col. 3, Line 25 – Col. 6, Line 2], for the purpose of self-testing.

Examiner further explains, the microprocessor self-testing procedure is well known in the art as the **Rosswurm** reference cited by examiner. Basically, claims 2 – 32 are claiming self-testing procedure, and also line 8 – 15 of claim 1, have some features like predefine a pattern, complementing the data of registers, copying data from the registers to registers other than the registers, determining the complements, notifying the determinations have all been disclosed by **Rosswurm** reference.

It would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to modify the teaching of **Hill** to include "setting a set of bits in a number of general registers of the microcontroller to a predefined pattern; complementing the set of bits of one of the general registers; copying the set of bits from the one of the general registers to a special register of the microcontroller; determining if each bit in the set of bits copied to the special register was complemented; and producing a notification signal based on the determination" for the purpose of self-testing.

Art Unit: 2121

**Conclusion**

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Robertus W. C. Dekker et al. (U.S. Patent No. 5,325,367) discloses a self-testing, a memory (RAM), a register, a test pattern, and comparisons.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sunray Chang whose telephone number is (571) 272-3682. The examiner can normally be reached on M-F 7:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Knight can be reached on (571) 272-3687. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-746-3506.

Sunray Chang  
Patent Examiner  
Group Art Unit 2121  
Technology Center 2100  
U.S. Patent and Trademark Office

  
**Anthony Knight**  
**Supervisory Patent Examiner**  
**Group 3600**

April 28, 2005